About one characteristic of set of linear differential systems with non-negative coefficients

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Abstract

The families of morphisms of vector fibre bundle ([1]) defined by the linear systems of differential equations with non-negative coefficients is considered. Authors proved that the specified families of morphisms is not saturated ([2]).

We consider the vector fibre bundle (E, p, B) with R^n as a fibre and B as a base (where B is full metric space). On (E, p, B) has fixed some Riemannian metric ([3], P. 58-59).

Investigate the families of morphisms $\mathfrak{G}$ of linear enlargement of dynamic system ([4]):

$$(X(m), \chi(m)) : (E, p, B) \to (E, p, B),$$

$(m \in N)$, of the vector fibre bundle (E, p, B), where

$$B = M_n, \quad E = B \times R^n, \quad p = pr_1, \tag{1}$$

$$X^t(A, x) = (\chi^t A, \mathfrak{X}(t, 0, A) \cdot x),$$

$$\chi^t A(\cdot) = A(t + (\cdot)),$$

here M_n - the space of linear systems of differential equations with non-negative coefficients ([5]), $A \in B$, $x \in R^n$, $\mathfrak{X}(\Theta, \tau, A)$ - Cauchy matrix of the system $\dot{x} = A(t) \cdot x$.

Theorem 0.1. *The families of morphisms $\mathfrak{G}$ of the vector fibre bundle (1) is not saturated.*

References

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